

# Electricity Access in India

Realities, challenges, drivers and outcomes

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A dark, low-key photograph of a village scene. In the foreground, a person is lying down, possibly resting or sleeping. In the background, several people are standing and talking. The lighting is dim, suggesting an evening or indoor setting with low light. The overall mood is somber and highlights the lack of electricity.

**237** million  
population without electricity

A photograph of a dark, dimly lit primary school classroom. Two children are visible: one standing on the left, holding a book, and another sitting on the right, reading a book. The room is mostly dark, with light coming from a window on the right. The text '50% primary school without electricity' is overlaid in the center.

**50%**  
primary school without electricity

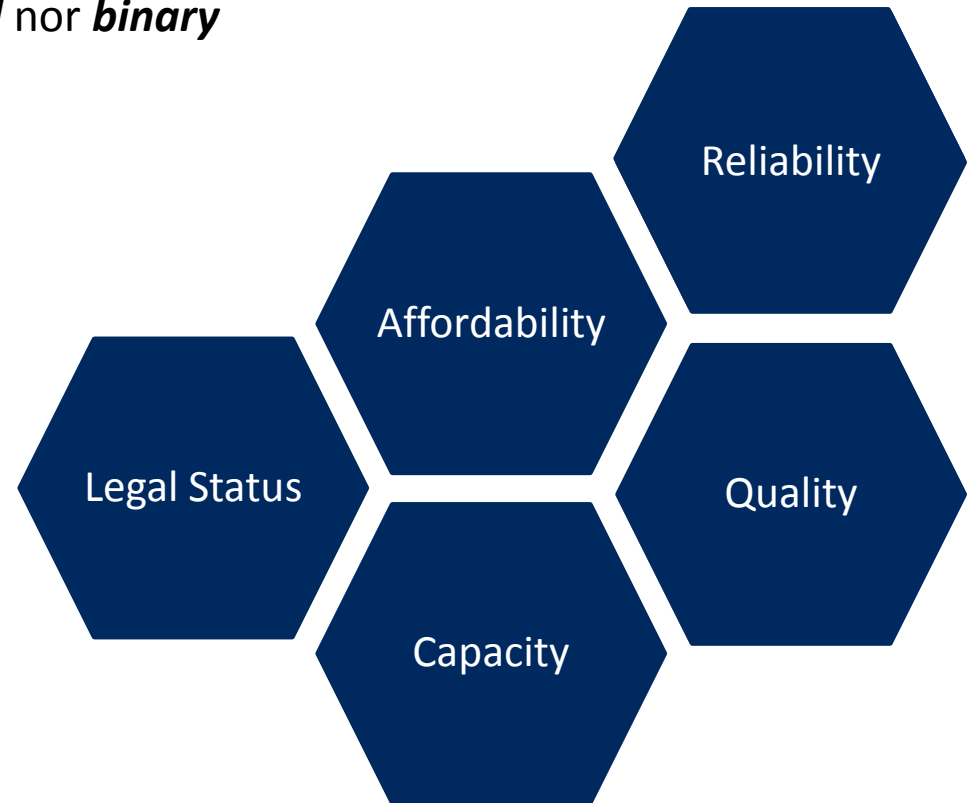
A man is operating a small, red and blue tractor in a field. The tractor is pulling a wooden frame with a large pile of green grass or hay. The background shows a line of trees and a clear sky. The image is slightly faded to allow text to be overlaid.

1/3

Farm power availability, in comparison to China

# WHAT is electricity access?

- Looking beyond village electrification and household connection
- Energy access is neither *unidimensional* nor *binary*
- Various facets and aspects involved
- Striking the balance between
  - Detailing
  - Measurable, replicable & scalable
- **Identifying the barriers to access**



6 states | 51 Districts | 714 Villages | 8,566 households | 2.5 million data points

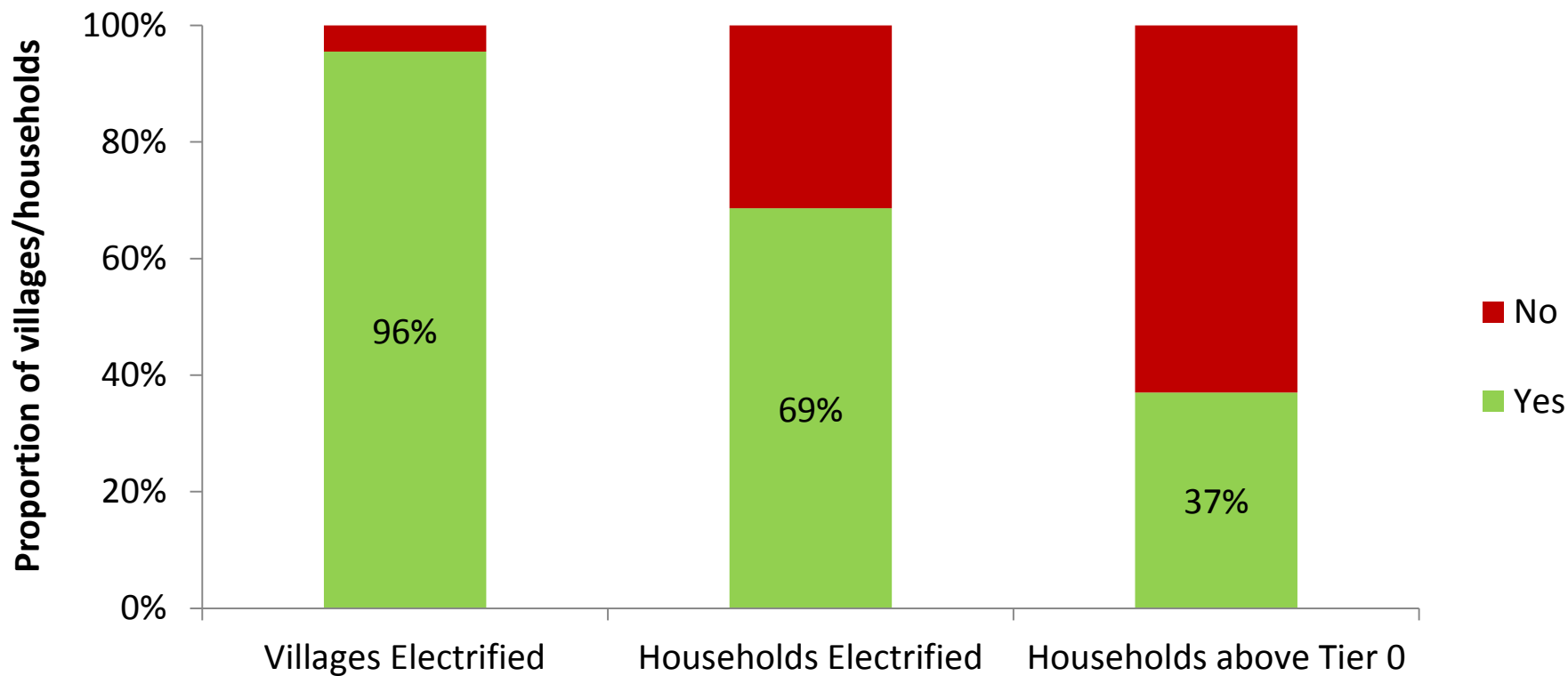
# ACCESS - Electricity Access framework

Tier \ Dimension	Tier			
	Tier 0	Tier 1	Tier 2	Tier 3
Capacity	No electricity	Lighting + Basic entertainment / communication (Radio/ Mobile) (~1-50W)	Lighting + Air circulation + entertainment / communication (TV/ Computer) (~50-500W)	Tier 2 services + Medium to Heavy loads (>500W)
Duration	<4hrs	>4hrs and <8hrs	>8hrs and <20hrs	>=20hrs
Reliability (Black-out Days)	5 or more days	2-4 days	1 day	0
Quality*	$N_H > 3$ ; $N_L > 6$	$N_H = 0-3$ ; $N_L = 0-6$	$N_H = 0-1$ ; $N_L = 0-3$	$N_H + N_L = 0$
Affordability	Unaffordable		Affordable	
Legal Status	Illegal		Legal	

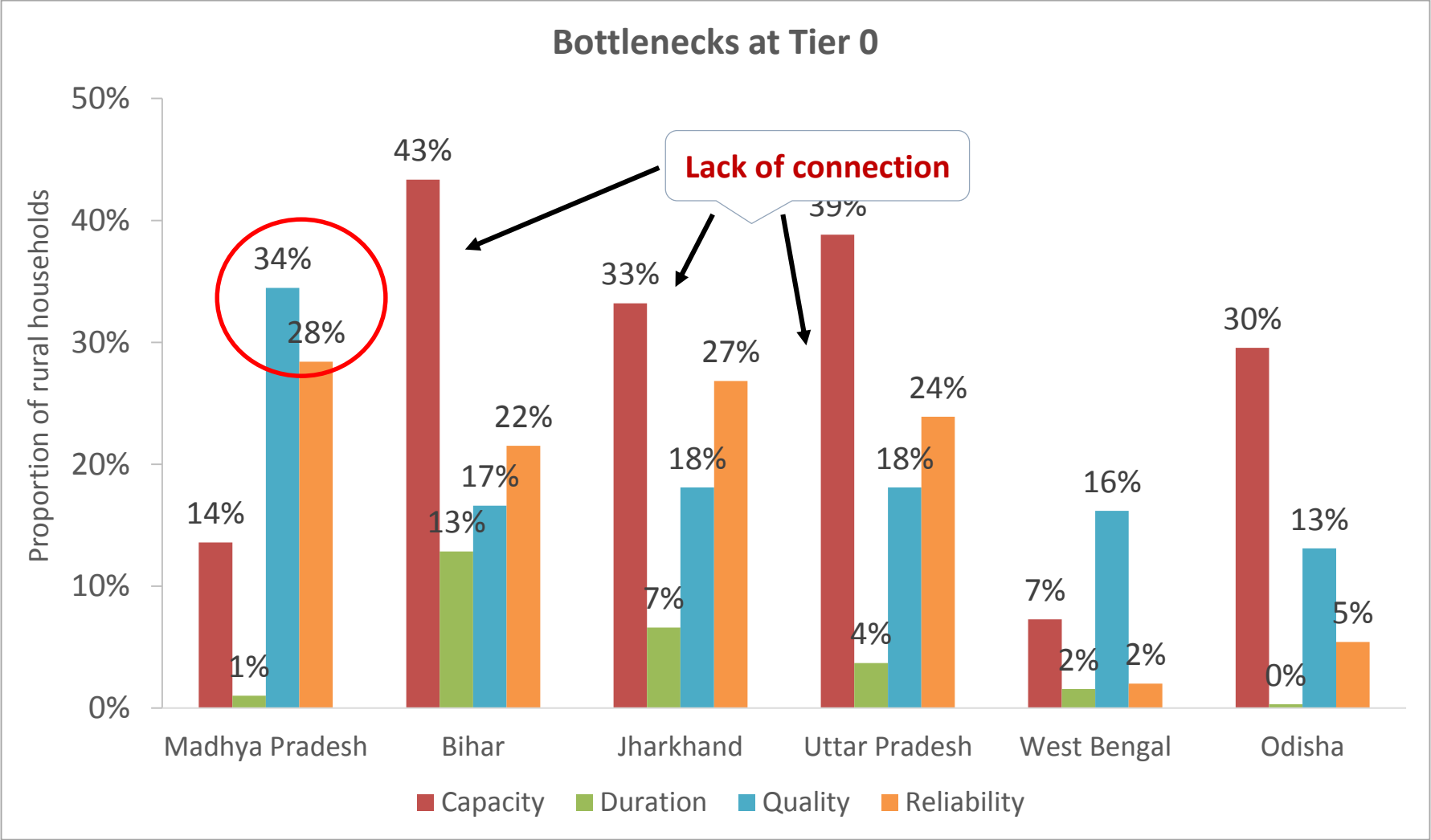
\* $N_H$  is number of high voltage days in a month causing appliance damage;  $N_L$  is number of low voltage days in a month limiting appliance usage.

**NOTE:** For dimensions where the categories span multiple tiers, only the higher tier values apply. For example, affordability can only be categorised as Tier 1 or Tier 3. The same is the case for legality.

## Electricity Access – Six states (2015)



# Why do majority of the households remain in the bottom-most tier?





## WHY - The rationale to further electricity access

- Political leverage
  - 40 years of promises; shifting goal-posts; centre-state
- Developmental outcomes
  - Electricity is necessary but not sufficient
- Focus on households, community and productive use
- Means, but not the end in itself
  - Complimentary roles of grid and DRE solutions
  - 7.5% using decentralised solutions; 5% using them exclusively

## What works?

- Technology innovation
  - Cost; Reliability; Consumer centric
  - Ecosystem support – Philanthropic capital, Demand aggregation
- Financial innovations
  - Simpa Networks; Solar pumps
  - Experimentation – Venture capital, Patient capital; Understanding consumer
- Policy support
  - Evidence based unbiased research
  - Managing interest of various stakeholders – Narratives
- Achieving time-bound targets
  - Political will and leadership
  - Exploit motivation factors at individual level

**Thank you**  
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